

REMARKS

Claims 1-2, 7, and 10 again stand rejected under 35 U.S.C. 112, first paragraph, for not being enabled by the Specification. Specifically, the Examiner asserts that the Specification “focuses exclusively on the saturated magnetic field in terms of controlling the property and is silent with regard to controlling or making a magnetic having an anisotropy magnetic field of 0.8 kA/m or more.” Applicants therefore respectfully traverse this rejection in its entirety. The Specification does not describe a saturated magnetic field as being exclusive of an anisotropic magnetic field, as the Examiner appears to imply. Nor do the claims recite anything about either an anisotropic magnetic field or a saturated magnetic field *controlling the property* of the magnetic film. The Examiner appears to have misread both claim 1 of the present invention, and also the present Specification.

Claim 1, for example, recites a laminated magnetic film having a particular composition, and which exhibits particular magnetic field results. The Examiner seeks to add limitations to the claim when he asserts that the type of magnetic field must also *control* the properties and characteristics of this film. The Examiner is not entitled to add such limitations to the claims without supported evidence.

Furthermore, the portion of the present Specification cited by the Examiner (page 9, lines 19-27) even contradicts the Examiner’s assertions. The Specification simply does not describe a saturated magnetic field as being exclusive of an anisotropic field. In fact, the cited portion text indicates just the opposite. The cited paragraph describes both saturated and anisotropic characteristics to the same magnetic field. Applicants note that the

Examiner's own cited references of Iwasaki (U.S. 5,587,026) describes both anisotropic and saturation characteristics to a same magnetic field. (See col. 15, lines 36-42).

Accordingly, this outstanding Section 112 rejection must be withdrawn. The Specification fully enables, at least at page 9 and its accompanying drawings, how "clear uniaxial magnetic anisotropy was observed, and a saturated magnetic field." (Lines 23-24, emphasis added). Applicants are not required to recite every embodiment of the present invention within a single claim, nor are Applicants required to recite a particular preferred embodiment in every claim either. One skilled in the art would clearly understand how the "clear uniaxial magnetic anisotropy" is enabled from the present Specification, and the rejection is therefore without merit.

Claims 17-18 and 20 stand rejected under 35 U.S.C. 102(a) and/or 35 U.S.C. 102(b) as being anticipated by Katada et al. (IEEE Trans. Mag. 38(5), 9/2002, 2225-2227). Applicants respectfully traverse this rejection because a *prima facie* case of anticipation has not been established. The cited reference does not disclose (or suggest) all of the recited composition and properties of the present invention.

The Examiner's reliance on the Katada reference is misplaced. The Examiner specifically relies on both of Figs. 3 and 5 of Katada, but neither of these drawings actually read upon the present invention. The compositional structure of the layers used for both of Figs. 3 and 5 of Katada is different from the clearly recited compositional structure of the nonmagnetic layers of claim 17 of the present invention. As previously discussed, Cr is the only element from the Katada reference that is common with the group of elements featured

in the magnetic layer of claim 17. However, neither of the structures represented by Figs. 3 or 5 of Katada include Cr in the magnetic layer. Although Katada does disclose the use of Cr in a nonmagnetic layer, such a use is not taught (or suggested) in the examples relied upon by the Examiner.

The several embodiments disclosed by Katada are simply not interchangeable for any or all of their features, as the Examiner appears to be asserting. Katada even contradicts such an assertion. Fig. 1 and Table I of the reference both clearly show that the magnetic properties of Katada's layered structure significantly change with the addition of only Cr to the layers surrounding the magnetic layer. The Examiner is therefore not entitled to pick and choose different elements from the various embodiments disclosed by Katada, and just freely interchange these elements without considering any of the necessary consequences to the modified structure that results from such substitutions.

Moreover, the Examiner's additional assertions regarding Katada (that Fig. 5 and the last three paragraphs teach the two or more nonmagnetic layers and two or more magnetic layers of the present invention) are also without support from the reference. Katada, as cited by the Examiner, describes only differences in layer *thicknesses*, and not the number of layers, as asserted by the Examiner. The caption to Fig. 5 of Katada clearly indicates that only a single magnetic layer was included in that embodiment. Although two nonmagnetic layers are disclosed by Katada, neither of these two layers includes any of the required elements from claim 17 for both layers.

Accordingly, the Examiner simply has not identified any structural composition from Katada that is identical to the clearly recited limitations of claim 17 of the present invention. The Examiner's lengthy discussion about the potential "inherent" magnetic properties of Katada's structures is therefore irrelevant to the present invention, because Katada's structure and composition has not been shown to be identical. Accordingly, for at least these reasons, the rejection of claim 17 based on Katada is respectfully traversed, and should be withdrawn.

With respect to the Examiner's rejections of claims 18 and 20 based on Katada, the rejection of these claims is also without merit. The Examiner is not entitled to presume magnetic properties similar to those recited in the present invention, when an identical structure has not been identified in the prior art. It is well known in this field of art that even relatively minor alterations to the structure or composition can significantly alter the magnetic properties of the device. Because Katada simply fails to disclose (or suggest) any of the multiple magnetic layers or nonmagnetic layers of the present invention, the Examiner has not presented any rational basis for how the residual stress recited in claim 18, or the saturation magnetic flux density recited in claim 20, is necessarily anticipated by Katada. Accordingly, the rejection of these two claims is also traversed for at least these reasons.

Claims 17-18 stand rejected under 35 U.S.C. 10(b) as being anticipated by Iwasaki et al. (U.S. 5,587,026). Applicants respectfully traverse this rejection as well, because the asserted *prima facie* case of anticipation has not been established either. None of

the cited portions of Iwasaki meet all of the limitations of the present invention, as erroneously asserted by the Examiner.

For example, although the Examiner is correct that Fig. 21 of Iwasaki shows two or more magnetic layers and two or more nonmagnetic layers, Iwasaki never describes what is the elemental composition of the nonmagnetic layers. Nowhere does Iwasaki teach (or suggest), for example, that the intermediate layer 32 is comprised of any one of the elements required for the nonmagnetic layer in claim 17 of the present invention. Accordingly, the Examiner simply has not established that the reference shows a structure identical to that recited in the present invention.

It should also be pointed out that Fig. 21 of Iwasaki does not even relate to Example 8 of the reference, as asserted by the Examiner. Fig. 21 relates only to Example 7, which is not cited by the Examiner for including any of the features of the present invention. Moreover, the text from Example 8 in Iwasaki describes a significantly different structure from Example 7, and thus also fails to disclose (or suggest) the structure of the present invention. Claim 17 of the present invention features that each of the nonmagnetic layers includes at least one of the elements from the recited group. Example 8 of Iwasaki, however, discloses only a single Cr film on the substrate (col. 15, lines 7-9), but not that this film is nonmagnetic, or also that there are two or more of such nonmagnetic films. Iwasaki is focused almost exclusively on different elemental compositions of the magnetic films, and is generally silent regarding the combination of such magnetic films with nonmagnetic layers.

Accordingly, a *prima facie* case of anticipation has not been established against claim 17, and the rejection should be withdrawn.

With respect to the rejection of claim 18 in particular, Applicants traverse this rejection as well for at least the reasons discussed above (claim 18 depends from claim 17), but also because the Examiner has admitted, at page 10 of the previous Office Action, that Iwasaki does not disclose the recited stress range of claim 18. Accordingly, the Section 102 rejection of claim 18 fails on its face by the Examiner's own admission, and should be withdrawn.

Claims 1 and 17 stand rejected under 35 U.S.C. 102(b) as being anticipated by Saito et al. (U.S. 5,304,975). Applicants respectfully traverse this rejection for at least the reasons of record, and as follows. A *prima facie* case of anticipation has not been established here either.

With respect to dependent claim 1 of the present invention, the Examiner's assertion that Saito "discloses non-magnetic materials meeting applicants' claimed limitations" (col. 7, lines 46-56), is simply not supported by the reference. The cited text portion of Saito does not disclose the entire composition to any layer in the device. "Comparative Example 1" only even teaches to stack Co and Cu alternately as the magnetic and nonmagnetic layers respectively. The magnetic layers of the present invention, on the other hand, require Fe in addition to Co (Cu is furthermore not one of the elements recited to comprise the nonmagnetic layer of claim 1). Accordingly, the rejection of claim 1 based on Saito is deficient on its face, and should be withdrawn.

With respect to claim 17, Applicants traverse for reasons similar to those discussed above with respect to claim 1. The multiple stacked layers cited by the Examiner equally fail to meet the limitations required by claim 17. In “Comparative Example 2” of the reference, although the Examiner has identified nonmagnetic layers made of Cr, these magnetic layers are made only of Fe, and are not disclosed to include Co, as required by claim 17 of the present invention. Once again, the Examiner is not entitled to pick and choose unrelated elements from different embodiments disclosed in the prior art, without some affirmative teaching or suggestion in the prior art to do so.

The appropriate standard for review by the Examiner in this case was what one of ordinary skill in the art would understand when reading the present claims and the prior art references. The Examiner, in contrast, is highly educated in this field well beyond on of *ordinary* skill, and is therefore one of special skill in the art. The Examiner’s own personal knowledge, opinions, and rationales may not be relied upon to determine patentability. The Examiner may only rely upon what one of ordinary skill in the art would understand, and such understanding can only be demonstrated by what is affirmatively taught or suggested by the prior art itself. Applicants have no burden to refute the Examiner’s suggested modifications and recombinations of the prior art embodiments, when this Examiner has not cited to any affirmative teaching (or suggestion) in the prior art to do so.

Applicants’ arguments traversing the Examiner’s reliance on the “comparative examples” from Saito are hardly moot, as erroneously asserted by the Examiner, because the Examiner himself continues to rely upon these examples in asserting his personal theories to

the claims. The Examiner may not rely on such material, however, and then dismiss all of the arguments traversing such reliance as being irrelevant to the other cited examples in the same reference. If the Examiner is going to rely upon particular teachings of the prior art, Applicant is entitled to traverse those citations. Since the Examiner appears to now admit that Saito's comparative examples are "irrelevant" to the rejection, the Examiner should have to withdraw his statements that specifically rely on those portions of the prior art.

Claim 18 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki, and further in view of Osaka et al. (U.S. 6,063,512). Applicants therefore respectfully traverse this rejection for at least the reasons of record, those discussed above, and as follows. A *prima facie* case of obviousness has not been established. The Examiner has not identified where in the prior art references are taught all of the claimed limitations of the present invention, nor has the Examiner identified any teaching or suggestion from the prior art that indicates the desirability of the proposed combination.

As described above, Iwasaki simply fails to teach or suggest a magnetic film having a structure and composition identical to that of the present invention, as erroneously asserted by the Examiner. Iwasaki simply does not teach two or more nonmagnetic layers, where each of these layers includes at least one of the recited elements of the present invention. This significant deficiency in the rejection is no way relieved by the addition of Osaka. None of the cited portions from Osaka describe any specific composition formed on magnetic layers. Accordingly, under the requirements of Section 2143.03 of the MPEP, the Examiner has not established a *prima facie* case of obviousness.

The asserted *prima facie* case of obviousness also fails on its face because the Examiner has not identified any teaching or suggestion from either cited reference that supports the desirability of making the combination proposed. “Impermissible hindsight” thus results from the Examiner’s picking and choosing different features from among the prior art, and combining them without any objective teaching or suggestion of record indicating the desirability of making the exact combination proposed. In the present case, the Examiner has demonstrated such impermissible hindsight. Osaka neither teaches nor suggests a structure and composition similar to either the present invention, or even Iwasaki. Therefore, there can be no obvious reason for combining the two references together absent such a specific teaching or suggestion within either reference. No such teaching or suggestion, however, has even been identified. Accordingly, the *prima facie* case of obviousness is further deficient on its face for not meeting the requirements of Section 2143.01 of the MPEP.

The Examiner’s own personal opinion of how the two references can be combined is simply not relevant to patentability. As discussed above, the Examiner has special skill in this field of art, and is not a person of ordinary skill. The Examiner is therefore under an additional burden to demonstrate where the prior art itself supports every theory he proposes to reject the patentability of the present claims. Without such objective evidence on the record, which is capable of review, the Examiner’s own theories and opinions may not be the basis upon which the claims are rejected. See In re Lee, 277 F.3d 1338, 61 U.S.P.Q.2d 1430 (Fed. Cir. 2002).

Furthermore, even if the two cited references could be combined as proposed by the Examiner (which Applicants do not concede), Osaka still fails to support the Examiner's assertions regarding the reference. The Examiner asserted (page 10 of the previous Office Action) that Osaka teaches "the importance of controlling the magnitude of the stress in a film to be near 0 in order to ensure films of uniform quality." (Emphasis added). Osaka though, makes no such claim. Osaka only teaches that below a particular current density range, "film stress is increased, making it difficult to obtain a film of uniform quality." (Col. 5, lines 58-62). Nowhere does Osaka ever teach or suggest to keep the stress "near 0," nor does Osaka ever describe what is an acceptable stress range for its film. The Examiner has added features to the prior art which the prior art does not itself contain.

At most, Osaka teaches nothing more than to avoid increasing the film stress beyond what would normally occur in the current density range described for the particular film structure and composition disclosed. Such a limited example though, hardly reads upon the specific stress range recited in claim 18 of the present invention, which applies to a particular film structure and composition that is not even contemplated by Osaka. Accordingly, for at least these further reasons, the particular rejection of claim 18 based on a combination of Iwasaki and Osaka is further traversed, and should be withdrawn.

Claim 19 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki, and further in view of Kamiguchi et al. (U.S. 6,303,218) and Inoue et al. (U.S. 2002/0187565). Applicants respectfully traverse this rejection for at least the reasons of record, those discussed above, and as follows. The Examiner has not identified where each

and every feature or limitation of the present invention exists within the prior art, and the Examiner has not identified any teaching or suggestion within any of the cited references that indicates the desirability of making the entire combination proposed by the Examiner.

As discussed above, Iwasaki simply fails to disclose a structure and composition identical to that of the present invention. Applicants note that the Examiner merely cites Inoue and Kamiguchi for teaching to “control the magnitude of the surface roughness of the films.” The Examiner never asserts that either reference teaches an actual range of surface roughness that can be controlled, or more particularly that can be controlled for a structure and composition identical to that of the present invention. The Examiner’s only stated rationale for combining the references is that “the Examiner deems that it would have been obvious to one having ordinary skill in the art to have determined the optimum value of a results effective variable such as the magnitude of the film surface roughness through routine experimentation.” (Emphasis added). Neither of the cited references, however, supports the Examiner’s assertion that surface roughness can simply be controlled as a “results effective variable” through “routine experimentation.”

Again, what the Examiner personally deems is not relevant to patentability. The Examiner has special skill in the art, and his personal opinions and theories are not capable of objective review. The cited prior art references, on the other hand, are capable of objective review, and they simply do not teach or suggest the specific range of surface roughness recited by the present invention. Even according to the Examiner’s theory, the Examiner has not shown how routine experimentation with the cited prior devices would

determine that the optimum value of surface roughness is within the range recited by claim 19. The references simply do not teach or suggest which possible result would occur under the Examiner's theory.

Additionally, the mere fact that such results are only possible, and not mandatory, defeats the proposed combination under the requirements of Section 2143.01. Obviousness cannot be based upon only "probabilities and possibilities." Even if references can be combined as proposed by the Examiner (which Applicants do not concede), the Examiner is still required to show where the references themselves teach or suggest that they should, or must, be combined as proposed. This burden has not been met in this case, and therefore the rejection of claim 19 is again traversed, and should be withdrawn.

Claim 20 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki, and further in view of Sun et al. (IEEE Tans. Mag., 36(5), 9/2000, 2506-2508). Applicants respectfully traverse this rejection for at least the reasons of record, those discussed above, and as follows. Iwasaki simply does not teach or suggest all of the structural and compositional features of the present invention, as discussed above, and the addition of the Sun reference fails to overcome these deficiencies. Furthermore, the Examiner has not identified any teaching or suggestion within either reference that indicates the desirability of making the combination proposed by the Examiner.

The Iwasaki reference fails to meet the limitations of the present invention for at least the reasons described above. It is important to note that Sun also fails to disclose all of the structural and compositional features of the present invention. Accordingly, neither

reference, taken alone or together, can satisfy the requirements of Section 2143.03 of the MPEP. Sun teaches nothing more than FeCo magnetic layers, and is silent regarding the nonmagnetic layers recited in the present invention, let alone the requirement of having two or more of such layers.

This rejection also fails though under the requirements of Section 2143.01 of the MPEP. Section 2143.01 requires that the Examiner identify within the prior art where the desirability of making the proposed combination is taught or suggested. In the present case, however, the Examiner has not even established a rationale for how the two cited references *can be* combined, let alone that they should be combined, and also that they should be combined as proposed by the Examiner. Once again, merely picking and choosing various features of different prior art references, but without citing to where the prior art itself teaches or suggests the desirability of making such combinations, is the definition of impermissible hindsight. The Examiner has established nothing more than that the two references have at least one FeCo alloy magnetic layer in common. This single common feature between the references hardly supports the combination as proposed, or as applied to the specific limitations of the present invention. Accordingly, this rejection is further deficient on its face, and should be withdrawn.

Claims 2, 10, 18, and 20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Saito, and further in view of Osaka and Sun. Applicants therefore respectfully traverse this rejection for at least the reasons of record, those discussed above, and as follows. A *prima facie* case of obviousness has not been established against the

present invention. All of the features of the present invention have not been identified within the prior art references, and the Examiner has provided no rationale for the desirability of making the proposed combination that is based upon any affirmative teaching or suggestion from the prior art. The Examiner has not even asserted a rationale for how the various references *can be* combined as proposed, let alone that they should be combined. Accordingly, this rejection also fails under both Sections 2143.01 and 2143.03 of the MPEP.

Claims 7 and 19 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Saito, and further in view of Kamiguchi. Applicants also traverse this rejection for at least the reasons of record, those discussed above, and as follows. Once again, the references do not teach or suggest all of the features and limitations of the present invention, and the Examiner has not identified any affirmative teaching or suggestion within the references that indicates the desirability of actually combining the references as proposed.

Claim 18 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Katada, and further in view of Osaka. Applicants also traverse this rejection for at least the reasons of record, those discussed above, and as follows. Neither Katada nor Osaka supports all of the assertions the Examiner has made regarding these references. Moreover, the Examiner has not identified any affirmative teaching or suggestion within either reference that indicates the desirability of making the combination actually proposed by the Examiner.

Claim 19 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Katada, and further in view of Kamiguchi. Applicants respectfully traverse this rejection therefore for at least the reasons of record, those discussed above, and as follows. Katada

does not support the Examiner's assertions regarding the structural and compositional features and limitations of the present invention, and the Examiner again has not indicated any affirmative teaching or suggestion from either reference that indicates the desirability of making the proposed combination.

As a final matter, with respect to the Examiner's several suggestions that Applicants provide evidence that the present invention performs differently from the cited prior art devices, no such evidence is required from Applicants to overcome these rejections.

As the Examiner himself acknowledges, the burden of proof does not shift back to Applicants until the Examiner first establishes that the claimed invention is structurally and compositionally identical to the prior art devices. In the present case, however, Applicants have repeatedly demonstrated how the prior art devices are not identical to the present invention in either structure or composition. Accordingly, the burden of proof has not shifted to Applicants, and the Examiner still has the burden to establish where each and every feature and limitation of the present claims is present in any or all of the cited references, alone or in combination, before he may demand such evidence.

Additionally, although Applicants appreciate the Examiner's lengthy explanations for how he personally believes the prior art can read upon the present invention, patentability can only be determined according to what is affirmatively taught and suggested within the prior art. The Examiner's own theories cannot be the sole basis for rejecting the claims when they are not based upon actual teachings and suggestions from the prior art.

Accordingly, for all of the foregoing reasons, Applicants submit that this Application, including claims 1-2, 7, 10, and 17-20, is in condition for allowance, which is respectfully requested. The Examiner is invited to contact the undersigned attorney if an interview would expedite prosecution.

Respectfully submitted,

GREER, BURNS & CRAIN, LTD.

By

A handwritten signature in black ink, appearing to read "Josh C. Snider". The signature is stylized with a large initial "J" and a long, sweeping underline.

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